Organic Aerosol Formation: Major Uncertainties Impacting Climate Forcing
(ASP Contributions)

Mechanisms of formation and growth:

- **Source of model-measurements discrepancy for SOA?**
  1. Lab SOA yields underestimated
  2. Unmeasured pool of precursors in air
  3. Assumptions in models incorrect

-effect of NOx
-reversible vs irreversible SOA formation
-chemistry and photochemistry in particles
-relative contributions of O_3, NO_3, OH

BC/Aerodyne
Ervens
Finlayson-Pitts
Laskin
Seinfeld
Smith/McMurry

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Water uptake [f (RH)], Growth and CCN Activity:

- Why similar for oxidized and unoxidized in both lab and field studies?

-What is relative importance of surface vs bulk solubility?

BC/Aerodyne
Clegg
Laskin

Martin
Ziemann

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Surface and Structure of particles:

- Is knowing bulk composition enough? e.g. if polar groups on inside, hydrophobic outside, oxidation may not lead to water uptake and CCN activity.

  - Impact on chemistry, e.g. establishment of equilibrium?
  - Need to peel like an onion
  - Techniques to do this?

Clegg
Paulson (optical properties)

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Synergism between biogenic and anthropogenic emissions

- Preponderance of modern C?

How much can we understand about organic aerosol with single particle and aerosol mass spectrometers?

-high resolution mass spectrometry very useful
-combination of density and MS provides insights
-identification of tracers important in future

- What new analytical approaches are needed?

-surface science approaches, e.g., TOF-SIMS
-identification of tracers, with separation first?

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What are the chemical loss processes/aging for SOA?

- What is relative importance of.reaction with OH, NO_3 etc?

-forms volatile gases or less volatile products?
-form SOA, then oxidize with OH etc, look for volatiles
-use "real" aerosols, mixture inorganics and organics

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Do SOA absorb in UV & do photochemistry, and what components are responsible?

Finlayson-Pitts

Are There Areas for Improved Coordination within ASP or Externally? What and with Whom?

- ASP currently provides excellent opportunities for integrating lab, field and modeling

- Circulate to all ASP investigators the titles and authors of papers as they are submitted

- Circulate in advance notice of presentations at meetings